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Report to the Chairman, Subcommittee
on Energy, Committee on Science,
Space, and Technology, House of
Representatives

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NUCLEAR CLEANUP

Difficulties in Coordinating Activities Under Two Environmental Laws





United States
General Accounting Office
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Resources, Community, and
Economic Development Division

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The Honorable Marilyn Lloyd
Chairman, Subcommittee on Energy
Committee on Science, Space,
and Technology
House of Representatives

Dear Madam Chairman:

In cleaning up waste sites within its nuclear weapons facilities, the Department of Energy (DOE) must comply with two major environmental laws—the Resource Conservation and Recovery Act of 1976, as amended (RCRA), and the Comprehensive Environmental Response, Compensation, and Liability Act of 1980, as amended (CERCLA, commonly known as Superfund). RCRA regulates the management of facilities that treat, store, or dispose of hazardous wastes and the cleanup of hazardous wastes released from such facilities. CERCLA governs the cleanup of inactive waste sites—that is, sites where disposal is no longer occurring.

Many DOE facilities have both active and inactive sites and therefore must meet the requirements of both RCRA and CERCLA. Thus, DOE and its federal and state regulators often have to coordinate cleanup activities and schedules that stem from each act's requirements. Your Subcommittee found indications that DOE facilities may be having difficulty coordinating these activities and schedules. Most recently, in a field hearing in August 1993, you identified problems in coordinating activities under RCRA and CERCLA at DOE's facility at Hanford, Washington. You asked us to provide more information about the issues involved by determining

- what DOE has done to coordinate its cleanup activities under RCRA and CERCLA,
- what problems with coordination continue and how cleanup activities have been affected, and
- how DOE plans to improve the coordination of cleanup activities in the future.

Results in Brief

The facilities in DOE's nuclear weapons complex that are contaminated with hazardous and radioactive materials are among the many public and private sites being cleaned up under RCRA and/or CERCLA. To help coordinate its activities under the two acts, DOE in 1988 developed general

operating principles (called "model provisions") for its facilities to use in negotiating interagency agreements with the Environmental Protection Agency and the state agencies overseeing cleanup activities. These agreements, which vary among facilities, establish a general framework for how cleanups under the two acts will be coordinated.

Despite the general frameworks provided in the interagency agreements, difficulties persist in coordinating cleanup activities. For example, at facilities that became subject to CERCLA after cleanup activities under RCRA had begun, disagreements have sometimes occurred between DOE and its regulators as to how CERCLA's requirements should be incorporated into ongoing cleanup activities under RCRA and how much additional paperwork is needed to document compliance with CERCLA. Furthermore, DOE and its regulators had difficulty coordinating schedules for cleanup activities under the two acts.

DOE has recognized these continuing difficulties and is considering actions to address them. It plans to issue additional guidance for coordinating activities under RCRA and CERCLA in the spring of 1995. It also tentatively plans to work with the Environmental Protection Agency and state regulatory agencies to improve strategies for cleanups at DOE's facilities and to address how the requirements of RCRA and CERCLA are to be met. At the time of our review, DOE had not yet finalized its plans for the second effort.

Background

DOE is responsible for environmental cleanup and waste management at 15 major contaminated facilities and more than 100 smaller facilities in 34 states and territories. These facilities encompass a wide range of waste sites, including tanks or other storage facilities containing radioactive waste from nuclear weapons production, production facilities that are now idled and in need of cleanup, and locations where hazardous chemicals were dumped into the ground. Cleaning up these sites is an enormous task. DOE's most recent estimate is that the cleanup will cost at least \$300 billion (and perhaps as much as \$1 trillion) and take more than 30 years to complete.

The cleanup of DOE's facilities is subject to CERCLA's and RCRA's requirements. The Environmental Protection Agency (EPA) is responsible for administering both acts, but EPA may authorize state agencies to implement all or part of its RCRA responsibility. Table 1 summarizes the purposes and selected features of the two acts.

Table 1: Selected Provisions of RCRA and CERCLA

	Resource Conservation and Recovery Act of 1976, as amended (RCRA)	Comprehensive Environmental Response, Compensation, and Liability Act of 1980, as amended (CERCLA)
Purpose and selected features	RCRA regulates the management of hazardous waste treatment, storage, and disposal facilities through a permit program. In 1984, amendments required corrective action (cleanup) for releases of hazardous wastes from any active or inactive site within such facilities. Corrective actions are incorporated into a facility's RCRA permit.	CERCLA provides authority for the cleanup of the nation's inactive or abandoned waste sites. The most hazardous sites, including federal facilities, are listed on the National Priorities List. In 1986, amendments required that federal facilities be addressed under interagency agreements between the agency responsible for a waste site and EPA.
Agency responsible for administration	EPA or authorized state agency	EPA
Substances addressed	Hazardous wastes and the hazardous constituents of mixed waste—waste that contains both radioactive and hazardous material ^a	Hazardous substances, including radioactive wastes

^aThe Federal Facility Compliance Act of 1992 established additional requirements with respect to the storage and treatment of mixed waste at federal facilities. These requirements are discussed in our report *Nuclear Waste: Much Effort Needed to Meet Federal Facility Compliance Act's Requirements* (GAO/RCED-94-179, May 17, 1994).

The requirements of both RCRA and CERCLA can apply at a DOE facility that has active and inactive hazardous waste sites. This is because a federal facility regulated under RCRA may also be listed on the National Priorities List for cleanup under CERCLA if it meets the listing criteria. EPA first included federal facilities that were subject to RCRA's corrective action requirements on the National Priorities List in 1989, and 19 DOE facilities are currently on the list. Once included on the list, facilities are subject to the cleanup actions and procedures specified under CERCLA as well as to RCRA-related requirements for corrective action established by EPA or a state regulatory agency.

DOE's facility in Oak Ridge, Tennessee, is an example of the dual application of RCRA and CERCLA. At Oak Ridge, DOE started corrective action work under RCRA in 1988 on a storage site for solid waste (called Waste

Area Grouping 6). In 1989, Waste Area Grouping 6 also became subject to CERCLA's requirements when Oak Ridge was placed on the National Priorities List. At some DOE facilities, sites regulated under RCRA are near sites addressed under CERCLA. For example, Hanford's B-pond, a disposal site for liquid wastes, is being cleaned up under RCRA, while abandoned trenches that formerly brought wastes to the B-pond are being cleaned up under CERCLA.

Cleanups under CERCLA and corrective actions under RCRA have broadly similar objectives. Under both statutes, releases of wastes needing further investigation are identified, the nature and extent of the releases are characterized, cleanup alternatives are developed, a cleanup remedy is proposed for public comment, and the selected remedy is authorized and carried out. However, the two programs differ in their highly detailed sets of procedural regulations and guidelines and in the particulars of their implementation. For instance, according to environmental restoration officials at DOE, corrective actions under RCRA are generally implemented unit by unit, while cleanups under CERCLA may address contamination over a wider geographic area, such as groundwater contamination that underlies several units.

DOE Has Taken Steps to Coordinate Cleanup Activities

In 1988 and 1989, DOE and EPA took steps designed to coordinate cleanup efforts in those instances when both RCRA and CERCLA applied. EPA took the lead in developing general guidance on coordinating the requirements of the two acts. EPA believed that in most situations, coordination could be achieved by using the interagency agreements between DOE and its regulators required by CERCLA. Among other things, interagency agreements (1) can divide responsibility for regulation between EPA and the states, if necessary; (2) establish milestones and priorities for the cleanup process; and (3) establish processes for resolving disputes between DOE, EPA, and the state regulators.

DOE and EPA also jointly developed model provisions to be included in the interagency agreements. The model provisions created a general framework for how the cleanup is to be coordinated under the two acts. Among other things, they

- established the integration of activities under RCRA and CERCLA as a goal of the agreement,
- specified that the cleanup actions undertaken should satisfy the requirements of both acts, and

- called for RCRA permits that include corrective actions to be compatible with the schedules for cleaning up the facility set out in the interagency agreement.

In planning the cleanup of a specific site, the facility and the regulating agency or agencies must still translate this general framework into specific actions.

By design, this general framework has been subject to considerable adjustment to meet the local situation. DOE headquarters directed that the model provisions be included whenever possible in the interagency agreements but also recognized that unique local conditions, requirements established by state regulators, and other factors could affect the agreements. Each agreement was separately negotiated by the DOE facility; the EPA regional office; and, where applicable, the state regulatory agency. These parties may also renegotiate the agreements to adjust schedules and other terms. The Office of Environmental Management and the Office of the General Counsel in DOE headquarters oversee and approve the agreements for DOE.

Each of the four agreements we reviewed¹ established a different strategy for coordinating activities under RCRA and CERCLA. For example, at the Savannah River facility in South Carolina, the approach concentrated on continuing cleanup activities that had already begun to meet RCRA's requirements and coordinating CERCLA's requirements with these ongoing efforts. By contrast, at the Idaho National Engineering Laboratory, where cleanup plans under RCRA were not as far along, DOE, EPA, and the state elected to give preeminence to cleanup procedures under CERCLA.

Difficulties With Coordination Continue

Despite efforts to coordinate activities under the two acts through the general frameworks of the interagency agreements, coordination problems have continued to arise.² In particular, agencies have sometimes disagreed over details of implementation and have had difficulty coordinating schedules.

¹These agreements concerned Hanford, Savannah River, the Idaho National Engineering Laboratory, and the Oak Ridge Reservation.

²In addition to the difficulties in coordinating activities under RCRA and CERCLA, other factors (such as regulators' disagreements related to technical matters or interpretations of regulatory requirements) have also played a part in the problems DOE has experienced in managing cleanups.

Agencies Have Not Always Agreed on How to Integrate Requirements

At the four DOE facilities that we reviewed, CERCLA's requirements had to be incorporated after cleanup activities under RCRA (or the planning for them) had already begun. Although each facility's interagency agreement addressed this issue in general terms, the agencies involved sometimes disagreed about the detailed implementation of specific cleanup activities, and these differences took a long time to resolve.

For example, one location at Oak Ridge, called Bear Creek Valley, included a series of active disposal sites for hazardous wastes that had been regulated by the Tennessee Department of Environment and Conservation under its authorized RCRA program. Following Oak Ridge's placement on CERCLA's National Priorities List in 1989, a 2-year disagreement between DOE and Tennessee officials resulted over whether to address the dangers posed to groundwater by the hazardous wastes on a site-by-site basis under RCRA permits or to address all of Bear Creek Valley's groundwater problems under CERCLA's requirements. State officials favored the first course of action, while DOE officials favored the second. In 1993, the disagreement was resolved by adopting the CERCLA cleanup approach and modifying the RCRA permits to reflect the resulting changes in schedules and procedures.

At Savannah River, disagreements arose over the preparation of additional documentation addressing CERCLA's requirements at sites where activities had already taken place under RCRA. DOE officials at the facility decided to prepare additional documentation, estimated to cost about \$33,000, for the Mixed Waste Management Facility, which had been cleaned up and closed in 1990 under RCRA. In preparing this documentation, DOE will basically be modifying paperwork prepared under RCRA to suit formats used under CERCLA; it will not be conducting additional cleanup activity or disclosing new information. Officials in South Carolina and EPA's regional office told us they believe DOE could use a simpler, less expensive approach. DOE officials at Savannah River told us they believe that unless this documentation is done, the administrative record under CERCLA will be incomplete.

Similarly, in September 1994 the Director of DOE's Office of Environmental Activities wrote a memorandum expressing concern about decisions by Savannah River officials to prepare proposed cleanup plans under CERCLA for groundwater beneath two areas of the facility and issue the plans for public comment. The cleanup approach for these areas had already been decided under RCRA. The Director noted (1) the potential waste of resources, given that more than 200 other pollution sites at Savannah

River were scheduled for cleanups under RCRA, and (2) the inappropriateness of requesting public comment after decisions about the cleanup approach had already been made.

Agencies Had Difficulty Coordinating Schedules for Activities Under CERCLA and RCRA

DOE, EPA, and state agencies share the responsibility for establishing schedules that allow cleanup activities under the two acts to be well coordinated. Each of the four interagency agreements we reviewed contained provisions addressing the coordination of schedules, but in practice, the agencies had difficulty developing schedules that coordinated related activities and reflected the relative risks present at the facilities.

For example, DOE and the Washington State Department of Ecology had difficulty developing a coordinated schedule for related cleanup activities at Hanford, resulting in a delay in the cleanup of one site. Hanford's B-pond formerly received wastes through a series of trenches, some of which were found to be contaminated with radioactive materials in the 1970s and taken out of service. A different method was then used to transfer wastes to the B-pond, which continued to operate. Between 1990 and 1993, interim stabilization under RCRA of the pollutants in the B-pond was delayed because DOE and the Washington State Department of Ecology disagreed about whether to complete the RCRA action as scheduled or to delay it and include actions on adjacent abandoned trenches covered under CERCLA. In 1993, the state agreed to a later action that would integrate the requirements of the two acts. In September 1994, DOE, the Washington State Department of Ecology, and EPA's regional office reached a tentative agreement that the approach used at the B-pond to coordinate activities under the two acts, if successful, would be extended to the 63 other sites at Hanford covered by RCRA but located within sites covered under CERCLA.

In another type of scheduling difficulty, cleanup schedules have not always reflected the relative risks posed by different sites within a facility. For example, at Oak Ridge's Waste Area Grouping 6, cleanup work started under RCRA was scheduled ahead of cleanup work under CERCLA without full consideration of the relative risks that pollutants at the site presented. The site contained active and inactive trenches for disposing of hazardous wastes that were a source of pollution to surface water and potentially to groundwater. Before the facility was placed on CERCLA's National Priority List, the trenches were being closed under a RCRA permit that called for finishing the closure by 1993. DOE planned and proposed a \$140 million remedial action that would have cleaned up the area and protected against

potential pollution of the groundwater in a way that met both this deadline and CERCLA's requirements.³ At a meeting on this proposal, members of the public objected to spending such a large sum of money because they believed that other waste sites at Oak Ridge posed a greater risk to people living near the site. DOE subsequently modified its plans, moving planned expenditures for the remedial action to higher-priority CERCLA activities. Groundwater at Waste Area Grouping 6 will instead be monitored for potential pollutants using a series of wells drilled at the site's perimeter. Monitoring will continue until Waste Area Grouping 6 is reevaluated under CERCLA at a later date.

DOE Has Tentative Plans to Improve Coordination

As DOE cleans up additional waste sites, problems such as the difficulty coordinating schedules described above could continue to arise. As of August 1994, only about 10 percent of the individual waste sites within DOE's facilities had been cleaned up. Furthermore, three DOE facilities—two of them undergoing cleanup activities under RCRA—were added to CERCLA's National Priorities List in May 1994.⁴ As noted above, incorporating CERCLA's requirements into cleanup activities taking place under RCRA has resulted in difficulties at Savannah River and Oak Ridge.

DOE is aware of the potential for continued problems and plans to address it by developing additional guidance for its facilities about coordinating activities under the two acts. Officials in DOE's Office of Environmental Activities told us that they hope to issue such guidance in the spring of 1995.⁵ At the time of our review, they anticipated that the guidance would include an overview of the legal requirements, a discussion of issues that have arisen in implementing the two acts, options and preferred approaches for integrating activities under the two acts, lessons learned by field staff about coordinating procedures and technical requirements under RCRA and CERCLA, and contact points for further sharing of information. The section on the lessons learned would be developed with

³In 1992, as provided in the Oak Ridge Federal Facility Agreement, cleanup of the entire Waste Area Grouping 6 was placed under CERCLA. However, for those units where activities had begun under RCRA, DOE concluded that the original compliance schedules still applied.

⁴These three facilities are the Pantex Plant (Texas), the Paducah Gaseous Diffusion Plant (Kentucky), and the Laboratory for Energy-Related Health Research (California). Pantex and Paducah had ongoing corrective action activities under RCRA. The facilities did not yet have interagency agreements under CERCLA at the time of our review.

⁵DOE previously drafted guidance on integrating activities under RCRA and CERCLA, completing a draft in May 1993. However, according to DOE officials, the guidance was not issued at that time because of possible legislative changes to CERCLA. Because DOE officials consider the 1993 draft to be outdated, a new effort is needed.

input from staff at DOE's facilities, according to one official.⁶ Officials from the Office of Environmental Activities have also met with staff in EPA's Office of Solid Waste and Emergency Response about working jointly on a number of issues, including coordinating activities under RCRA and CERCLA.

EPA officials from the Office of Solid Waste and Emergency Response and Office of Federal Facilities Enforcement told us that although details would need to be addressed with each state, additional guidance on overall principles for coordinating activities under RCRA and CERCLA would be beneficial. According to the EPA officials, it is important to obtain information and viewpoints from states and DOE facilities as the guidance is developed because such input will allow the parties to learn from each other and will increase acceptance of the resulting guidance.

DOE is also planning a pilot project to improve its approach to interagency agreements. In the pilot project, DOE tentatively plans to work with EPA regional officials and state officials to develop an overall technical strategy for cleaning up a facility and to address how the requirements of RCRA and CERCLA are to be met. If this pilot project succeeds, DOE hopes to extend the effort to additional facilities. According to an official in DOE's Office of Environmental Activities, the planned location for the pilot project is the Laboratory for Energy-Related Health Research in California, which was recently added to CERCLA's National Priorities List.⁷ According to draft plans for the pilot project, development of a cleanup strategy is expected to begin in January 1995 and take 5 to 6 months to complete. The interagency agreement for cleaning up the laboratory could then be negotiated to reflect this strategy. At the time of our review, however, DOE had not yet obtained formal commitments from the relevant EPA regional office and state agency to participate in the pilot project or finalized detailed plans for it.

Conclusions

Despite a general framework for coordination, DOE and its regulators have had difficulties in coordinating cleanup activities under RCRA and CERCLA. Some of the agencies' disagreements about particular cleanups have been resolved, but coordination problems could continue because much cleanup work remains and more DOE facilities have recently been added to

⁶DOE also plans to obtain input on ways to coordinate activities under RCRA and CERCLA from the Compliance and Legislative Workgroup of the National Association of Attorneys General, a group that includes representatives from the offices of the attorneys general of the states in which DOE has facilities.

⁷In addition, DOE plans to review cleanup strategies for the Paducah Gaseous Diffusion Plant and the Pantex Plant to ensure that the best technical approaches to cleanup have been incorporated.

the National Priorities List for CERCLA cleanups. DOE plans to provide additional guidance and to negotiate better strategies for coordinating its activities under RCRA and CERCLA. DOE's plans for developing guidance include obtaining information from facilities about approaches to specific problems that have worked well. We believe that DOE's efforts to apply lessons learned to the practical difficulties involved in coordinating cleanup activities under the two acts will be beneficial.

Agency Comments

As requested, we did not obtain written agency comments on a draft of this report. However, we discussed its contents with officials in the Office of Environmental Activities and the Office of Program Integration within DOE's Office of Environmental Management. These officials generally agreed with the information presented. They provided technical clarifications and updated information on their plans for the pilot project, which we have incorporated where appropriate.

Scope and Methodology

We performed our work between January 1994 and November 1994 in accordance with generally accepted government auditing standards. As agreed with your office, we concentrated our review on four facilities: Hanford, Savannah River, the Idaho National Engineering Laboratory, and the Oak Ridge Reservation. Among DOE's facilities, these four had the highest expenditures for environmental management in fiscal year 1993.

To determine what DOE has done and plans to do to coordinate its cleanup activities under RCRA and CERCLA, we reviewed EPA's guidance, the model provisions for the interagency agreements, the four facilities' interagency agreements, and documentation of a review by DOE of interagency agreements. In addition, we discussed DOE's plans and practices with officials in the Office of Environmental Management at DOE headquarters, DOE environmental restoration officials at the four facilities, and EPA officials in the Office of Solid Waste and Emergency Response and the Office of Federal Facilities Enforcement. To determine what problems continue with coordination and how the cleanup activities have been affected, we reviewed project files at the four facilities. We also discussed experiences in implementing RCRA's and CERCLA's requirements with DOE environmental restoration officials at the four facilities and with state officials who oversee DOE cleanups in Washington, South Carolina, Idaho, and Tennessee.

We are sending copies of this report to the Secretary of Energy and other interested parties. We will make copies available to others on request.

Please call me at (202) 512-3841 if you or your staff have any questions. Major contributors to this report are listed in appendix I.

Sincerely yours,

A handwritten signature in cursive script, appearing to read "Victor S. Rezendes".

Victor S. Rezendes
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